THE GENUS APHELONOTUS (HEMIPTERA, NABIDAE).

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Aphelonotus, a singular and heretofore monotypic genus, was erected by Uhler in 1894 for a new species, *simplus* from Grenada. The genus was considered by Uhler as being closely related to *Pachynomus* Klug and was therefore placed in the family Nabidae. Champion in 1899 in treating of the Central American hemiptera discovered and figured a species from Guatemala which he determined as *A. simplus* Uhler. He followed Uhler in placing the genus in the Nabidae but called attention to its strong resemblance to the reduviid group *Piratinae* and he noted that his specimens were slightly larger than Uhler's and that they had more completely developed membranes. Later (1908) Reuter, in writing of *A. simplus,* regarded the beak as being composed of only three segments and because of this, the presence of ocelli, the five-segmented antennae, and especially the character of the venation of the membrane, was led to consider the genus as being truly a reduviid one and as belonging to the sub-family Piratinae. That Reuter erred, however, in considering the beak three-jointed is readily shown by an examination of any of the species. The beak in its entirety is short and to be sure is reduviid-like in appearance but it is distinctly four-segmented (see Pl. I, fig. 4). We must note that it is now more or less commonly accepted that the difference in a so-called "four-segmented" beak and a "three-segmented" one, in many cases in the Hemiptera, is only a difference in the relative development of the basal segment—the beak in its entirety really consisting of four segments.

In 1928 the writer called attention to the apparent similarity in many body characters of *Aphelonotus* Uhler and *Pachynomus* Klug. A re-examination of these genera with more material at hand has served only to convince him further of their true likeness. The antennae in both are composed of five distinct segments. The rostrum is four segmented, even more evidently and distinctly so in the former than in the latter. The legs are similarly constructed and similarly armed. The pronota are almost identical in structure. The prosternal xyphus in *Aphelonotus* is provided with a fovea-like groove for the reception of the tip of the beak, a character which served to further convince Reuter of the reduviid

nature of the genus. An examination of *Pachynomus biguttatus* and of *P. lethierryi,* however, discloses that these likewise are provided with such a groove and, moreover, that it may be slightly granulose (not striated as Reuter says) as it is in *Aphelonotus.* This was to be not unexpected for even many of the species of the more truly nabid groups, *Prostemma* and *Pagasa,* show evidence of this prosternal fovea—it being fairly well developed in some species.

A careful diagnosis of the two genera thus establishes their similarity in structure in practically every way except in the nature of the venation of the membrane (I have, unfortunately, not been able to compare the genitalia). The presence of ocelli in *Aphelonotus* must be considered, of course, as a character of generic rank only, as some reduviid as well as nabid genera, and to be sure at least one species of *Nabis,* lack ocelli. The venation of the membrane of *Aphelonotus,* on the other hand (fig. 5), appears strictly reduviid in nature. The writer has recently described, however, two new species of *Pachynomus* from South America in which the membranal venation is almost identical with that of *Aphelonotus.* In these new species—the first representatives of the genus from the western hemisphere—the membrane actually shows a faint trace of the marginal veins characteristic of the Nabidae. Thus as more material becomes available our studies lead us to place these two genera, *Aphelonotus* and *Pachynomus,* nearer together, whether we speak of them as Reduviidae or Nabidae. In either case we are forced to acknowledge the fact that our so-called " natural groups " exist only in our imagination—in nature they blend one into the other so that as we come to know more forms our man-made categories ever approach more closely and thus are ever harder for us to separate. Perhaps from a phylogenetic standpoint *Aphelonotus* may be considered as a genus standing nearest of any of our living groups to the bases or separation points of the branches representing the *Reduviidae* and the *Nabidae* and therefore as a sort of annectant genus.

On this basis I am constrained to think of *Aphelonotus* Uhler as being nearest *Pachynomus* Klug and therefore as belonging to the nabid subfamily *Pachynominae.* A critical examination of the few available specimens of the genus proves it to be composed of at least five remarkably closely related species where only one has heretofore been recognized.

Aphelonotus Uhler.

1894. *Aphelonotus* Uhler, Proc. Zool. Soc. London, 1894, p. 208.
1899. *Aphelonotus* Champion, Biol. Centr. Amer., Rhyn., Heter., II: 297.
1908. *Aphelonotus* Reuter, Mem. Soc. Ent., Belg. 15: 91.
1928. *Aphelonotus* Harris, Entomologica Americana, 9 (n. s.): 3.

Small, oblong, somewhat shiny, thickly pubescent. Head moderately long, the anteocular part sub-cylindrical, the postocular part parallel-sided, vertex rather convex, collum short. Eyes only moderately large, not prominent or protruding, somewhat granular, as seen from the side occupying nearly the full depth of head, their hind margins thus seen strongly concave. Ocelli conspicuous, placed behind a line joining the hind margins of eyes. Antennae moderately long; segment I stout, extending well beyond apex of head, II and III cylindrical, II nearly twice as long as I and slightly longer than III; IV and V thin and clothed with numerous fine long hairs. Rostrum short and stout, four segmented, segment I very short, III slightly longer than II, tapered apically, IV nearly as long as II (fig. 4).

Pronotum about twice as wide as long, very feebly arched, with only faint evidence of ring-like collar, the sides slightly and evenly rounded, not margined; transverse depression placed near base; anterior lobe in front with a small, sunken, well delimited, triangular area, the apex of which is continued as a median longitudinal furrow extending to the transverse depression; posterior lobe broadly emarginate so that the mesoscutum is left exposed and the humeri appear as though produced. Scutellum triangular, somewhat arched, slightly broader than long, faintly depressed across the middle and likewise down the middle of the basal half. Hemelytra well developed, the clavus linear, its inner and outer margin and the outer margin or corium paralleled by rows of coarse punctures; corium abruptly cut off at apex of scutellum; embolium strongly widened distally, extending outward beyond apex of corium for a distance about equal to length of corium, its apical third dull; membrane well developed, its base transverse behind corium and longitudinal along embolium so that when the hemelytra are in repose the membranes together occupy a broad rectangular area having its beginning immediately behind the scutellum, with two longitudinal cells from the outer margin of each of which there extends an unbranched vein (fig. 5). Anterior femora strongly incrassate,

armed beneath with a double row of piceous teeth; intermediate and posterior femora slightly incrassate, armed (the posterior ones at times obsoletely so) as the anterior; anterior tibiae curved, provided with small apical pads, dentate within, intermediate ones likewise dentate within, all tibiae thickly pilose and provided with apical combs. Prosternum short, with a simple fovea for the reception of the beak; mesosternum longitudinally carinate down the middle; metasternum somewhat cordate, with a median ridge; metapleuron flat, granulose, without evidence of ostiole or canal. Abdomen depressed, closely pubescent. Male genital segment plump, with the claspers in repose lying crossed above the anal opening.

Type of genus, *A. simplus* Uhler.

Distribution: Neotropical.

Key to Species of Aphelonotus.

1. Smaller, 4 mm. or less in length; yellowish brown; width of head not or scarcely more than twice as great as width of vertex; ocelli placed closer to eyes than to each other 2
   Larger, 4.6 mm. or more in length; fuscous brown, width of head two and one half times as great as width of vertex; ocelli about equally as far from eyes as from each other...4
2. Membrane attaining apex of abdomen; posterior femora provided beneath along apical third with three slender piceous teeth 3
   Membrane not attaining apex of abdomen; posterior femora unarmed; male clasper as in fig. 1 .....*simplus* Uhler
3. Scutellum without a median irregular canal in basal depression; width of head twice width of vertex; 3.24 mm. **confusus** n. sp.
   Scutellum with an irregular median canal in the basal depression; width of head distinctly less than twice width of vertex; male clasper as in fig. 2; 4 mm. ....**fraterculus** n. sp.
4. Antennal II slightly less than twice as long as I; male clasper as in fig. 3; length 4.65 mm. .....**medius** n. sp.
   Antennal II slightly more than twice as long as I; larger, length 6.8 mm. .....**major** n. sp.

1. **Aphelonotus confusus** n. sp.

Similar in size and coloration to *simplus* Uhler, from which it is to be recognized by the slightly broader eyes and correspondingly narrower vertex, the absence of a longitudinal canal in the basal depression of scutellum, the membrane attaining the apex of abdomen, and by the presence of

three fine, piceous, spine-like teeth on the lower surface of the apical fourth of the hind femora. Length, 3.24 mm.; width, 1.04 mm.

Holotype, female, Madeira River above Manaos, Brazil, September, 1923, Lee Prizer, in collection of U. S. National Museum. *Paratypes,* two females, taken with holotype.

This species may prove, upon the acquisition of more material, to be inseparable from *A. simplus* Uhler. The writer deems it best, however, in view of the differences noted above and of the remarkable homogeneity of the other species to consider it as distinct.

2. *Aphelonotus simplus* Uhler.

1894. *Aphelonotus simplus* Uhler, Proc. Zool. Soc. Lond. for 1894, p. 209.

1899. *Aphelonotus simplus* Champion, Biol. Centr.-Amer., Rhyn., Heter., II: 297.

1908. *Aphelonotus simplus* Reuter, Mem. Soc. Ent. Belg., XV: 91.

Small, pale yellowish brown, the head, anterior lobe of pronotum, and scutellum darker. Head about one third longer than broad (26:20), the postocular part shorter than width of vertex (5:10). Eyes small. Ocelli placed much closer to the eyes than to each other. Antennae pale, proportional length of segments, 11:19:18:20:22. Rostrum short and stout, the third segment subequal in length to first of antennae. Pronotum twice as wide as long (48:24), the transverse furrow beset with coarse punctures. Scutellum with the anterior depression slightly granulose and bearing an obscure median canal. Hemelytra with membrane scarcely reaching beyond middle of last abdominal segment. Anterior femora, as seen from the side, about two and one-half times as long as deep (45:18); anterior trochanters armed with two, or at times three, small piceous teeth. Posterior femora without evidence of piceous teeth. Male claspers (fig. 1) short, in repose the apex of one scarcely reaching to the base of the other. Length, 3.2 mm.; width, 1.0 mm.

Originally described from seven specimens taken on the Mount Gay estate, Grenada, W. I. The above description is made from three specimens (cotypes) from the Uhler collection in the U. S. National Museum and three specimens (taken with the cotypes and bearing the same date-locality number, 115) from the H. E. Summers' collection at Iowa State College. The specimens were said to have been taken under leaves in a thicket on a dry hillside.

3. **Aphelonotus fraterculus** n. sp.

Similar to *simplus* Uhler but slightly larger and darker, the head piceous brown. Head about one-fourth longer than broad (30:23), the postocular part shorter than width of vertex (5:13). Eyes blackish, slightly longer and deeper than in *simplus*. Ocelli wide apart, the distance between them twice as great as the distance from an ocellus to the eye of the same side. Antennal proportion, 12:25:22:20:22. Pronotum as in *simplus*, length: width = 58:30. Membrane reaching slightly beyond tip of abdomen. Legs as in *simplus*, the anterior femora proportionally larger; posterior femora armed beneath at apical third with two short piceous, spine-like teeth. Male claspers distinctly longer and slenderer than in *simplus* (fig. 2), when in repose the apex of one distinctly overreaching the base of the other. Length, 4.0 mm.; width, 1.25 mm.

Holotype, male, Rio Trinidad, Panama, June 9, 1912, A. Busck, collector; *allotype,* female, Ancon, Canal Zone, Panama, May 12, 1911, A. H. Jennings, taken at arc-light; both in collection of U. S. National Museum. *Paratypes,* one male and one female, taken with allotype, one female, Tabernilla, Canal Zone, Panama, May, 1907, Aug. Busck, collector; one male, Rio Trinidad, Panama, March 20, 1912, A. Busck, collector; and two females, F. Campos R., Guayaquil, Ecuador; in collection of the U. S. National Museum and of the writer.

This is perhaps the species that Champion records (and figures, l. c., Pl. XVIII, fig. 15) from Guatemala as *A. simplus* Uhler.

4. **Aphelonotus medius** n. sp.

Brownish fuscous, the head piceous, its apex, and the antennae, and tibiae paler. Head about three-fifths longer than broad (40:25), the postocular part slightly longer than width of vertex (10:8). Eyes dark reddish, proportionally larger than in *simplus*. Ocelli placed equally as far from each other as from the eyes. Antennal proportion, 16:27:25 (IV and V missing). Pronotum twice as broad as long (70:35). Scutellum without basal median groove. Clavus with a few coarse punctures; membrane extending slightly beyond apex of abdomen, with an unbranched vein extending outward from the inner apical angle of the shorter or inner cell. Legs proportionally larger than in the preceding species, the posterior femora underneath with about a half dozen slender piceous teeth along their apical halves. Male clasper distinctive (fig. 3). Length, 4.65 mm.; width, 1.4 mm.

Holotype, male, Madeira River above Manaos, Brazil, Lee Prizer, September, 1923, in collection of U. S. National Museum.

5. **Aphelonotus major** n. sp.

Similar in coloration to *medius* n. sp., the head and pronotum darker than rest of body. Head about three-fourths longer than broad (57:33), the postocular part distinctly longer than width of vertex (17:13), the latter more strongly arched than in the other species; sides of head with a distinct laterally compressed shiny area behind the eyes. Eyes reddish brown. Ocelli placed as in *medius.* Antennal proportion 20:45:36 (IV and V missing). Pronotum scarcely twice as broad as long (96:50), the anterior lobe with a pattern of distinct smooth, crescent-shaped lines on each side. Scutellum with a smooth lunate area on each side of basal half, the basal median depression somewhat punctate but without distinct furrow. Hemelytra extending to tip of abdomen, the corium more distinctly and coarsely punctate than in *medius,* the membrane with two unbranched veins extending outward—one from each cell (fig. 5). Legs greatly incrassate; anterior trochanters beneath with four or five stout piceous teeth; each posterior femur armed for its entire length along the anterior surface beneath with a row of piceous teeth, and also with a few teeth on the apical fourth of the posterior surface. Length, 6.8 mm.; width, 1.9 mm.

Holotype, female, Teffe, Brazil, January 28, 1920, H. S. Parish, in author's collection. *Paratype,* female, Teffe, Brazil, January 21, 1920, H. S. Parish, collector.

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Explanation of Plate I.

Fig. 1. Left genital clasper of male of *A. simplus* Uhl.
Fig. 2. Left genital clasper of male of *A. fraterculus* n. sp.
Fig. 3. Left genital clasper of male of *A. medius* n. sp.
Fig. 4. Head of *A. major* n. sp., showing nature of rostrum.
Fig. 5. Hemelytron of *A. major*, showing venation of membrane.

THE GIANT KATYDID (STILPNOCHLORA COULONIANA SAUSSURE) IN MONROE COUNTY, NEW YORK.

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One late evening in the latter part of August, 1930, Mr. William Kruse, osteologist at the University of Rochester, captured a female of this large insect at his cottage, located on Irondequoit Bay, Monroe County, New York. According to Mr. Kruse, the insect, though a female, was making a clicking noise on the screen of an open window. It seemed to be perfectly at home although Blatchley (Orthoptera of Northeastern America, p. 491) quotes Rehn as stating that this rare species is known only from Cuba, the Isle of Pines, and Florida.

The locality in which the specimen was taken is very largely unsettled, with areas of oak and chestnut woods, and is five miles from the business district of Rochester, leading one to doubt the agency of man in its transportation. The question arises as to how the insect reached a spot more than a thousand miles north of its normal range. The wings, however, are just twice the length of the body, and unusually powerful looking; and it is not beyond possibility that the specimen flew northward in the high air currents. This solution would not suggest itself, probably, but for the fact that at Rochester we frequently experience great flights of the cotton moth (*Alabama argillacea* Hübner), which come to us from the southern Atlantic states. Could not this katydid have arrived by the same high route?

Needless to add, the species is an addition to the Orthoptera known from New York.